

Applicant: Antti Poikolainen et al.
Application No.: 10/525,275
Response to Office action mailed May 16, 2007
Response filed August 14, 2007

Remarks

Claims 19–20, 25, and 31–37 remain pending in the application. In the Office action dated May 16, 2007, claims 19–23, 25–29, 35, and 36 were rejected under 35 U.S.C. 102(b) as anticipated or as obvious over Bück et al. (US 5,389,206). Claims 19–23 and 25–29 were rejected under 35 U.S.C. 102(b) as anticipated or as obvious over Iwata et al (US 5,871,617). Claims 19, 20, 24, 25, 30, 35, and 36 were rejected under 35 U.S.C. 102(b) as anticipated or as obvious over Kotitschke (US 5,914,009). Claims 31–34 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bück et al., Iwata, or Kotitschke in view of Wildfong (US 6,372,091).

Claims 35 and 36 have been amended to more particularly claim the invention illustrated in FIG. 7 which is a hybrid former which combines a Fourdrinier former and a twin-wire former. In particular, applicant claims in claim 35 a “*fixed forming shoe having a curved surface deck, and a leading edge, the curved surface deck in engagement with the second forming wire, and wherein the second forming wire is arranged not to contact a layer of fibrous stock on the first forming wire until after the leading edge of the fixed forming shoe*”. This structure in combination with the arrangement of the hybrid former claims a structure which dewateres a web formed on a Fourdrinier former, first with nonpulsating dewatering, followed by pulsating dewatering.

Similarly claim 36 claims a method of: “*non-pulsating dewatering the fibrous stock in a first dewatering zone following the gap of the twin-wire former with at least one fixed forming shoe having a curved surface deck, and a leading edge, the curved surface deck in engagement with the second forming wire; drawing an underpressure on an essentially open surface of the forming shoe from above the forming shoe, and guiding the second forming wire so the second forming wire does not contact the layer of fibrous stock on the first forming wire until after the leading edge of the fixed forming shoe....*”

Claims 35 and 36 claim the inherent property of a Fourdrinier former, that the Fourdrinier wire defines an upper horizontal surface. The very nature of a Fourdrinier is that it has a single wire which forms a horizontal surface on which the stock is drained.

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Figure 5 of Bück et al., although indicated as advisable for modernizing an existing Fourdrinier papermaking machine, does not show how figure 5 could be used in a machine which retains the Fourdrinier forming section. Further, the shoe 16 of Bück et al. is located within what would have to be the Fourdrinier wire, not the claimed second wire.

Kotitschke, at col. 1, lines 41–46, cited by the examiner, states “...all proposed sheet formers...[are]... particularly suited *for replacement* of existing fourdrinier wires or for rebuilding an existing fourdrinier wire *to a double-wire former*.” [Emphasis added.] Clearly there is no indication that the Fourdrinier wire remains to form a hybrid former which combines a Fourdrinier former with a twinwire former.

European application 0 688 900 shows a hybrid former with a twin-wire forming section that starts with the breast roll 30, not applicant’s fixed forming shoe.

Claim 25 has been amended to claim the arrangement shown in FIGS. 1–3 where the headbox is “arranged to form a lip jet directed to engage only the first forming wire at a location spaced from the first breast roll and before the twin-wire dewatering area, such that a lip jet will travel only with the first forming wire until the beginning of the dewatering area” and to claim the arrangement of the breast roll in relation to the headbox, i.e., a second breast roll spaced farther from the headbox, which facilitates the arrangement of the headbox so that it can be arranged to form a lip jet directed to engage only the first forming wire. This structural arrangement of the breast rolls, the first and second wires and the location of the forming shoe, and the arrangement of the headbox define applicant’s invention, and are not shown in the art of record.

In Bück et al. FIGS. 1 and 3–5, the headbox is arranged to form a lip jet directed to engage both forming wires, and the breast roll of the forming wire which contains the forming shoe is closer, or the same distance from, not further from the headbox. In FIG. 2 the lip jet is directed to engage both forming wires on the breast roll, and all the shoes illustrated engage the wires after the beginning of the dewatering area.

In Iwata et al, FIG. 1, the breast rolls are equally spaced from the headbox, and the headbox is arranged to direct a lip jet which engages both forming wires.

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In Kotitschke, the headbox is arranged to direct a lip jet to engage both forming wires, and the dewatering zone begins over a breast roll, and the dewatering shoe is *not* positioned with its leading edge extending towards the second breast roll before the beginning of the dewatering area.

The examiner invites the applicant *to point out any structural differences which do not allow prior art dewatering elements to function according to the claims*. To which applicant has responded by amending claim 25 to structurally define over the applied art of record, but it is to be noted that the references themselves describe the disclosed shoes in such a way as to produce pulsating dewatering. In Bück et al. col. 5, lines 29–37, the formation shoe is described so “that at least one wire belt travels polygonally from strip to strip, each strip not only leading water away but also producing turbulence in the pulp which is still liquid”. Iwata et al., col. 1, lines 20 and 31, indicates that the structure labeled 9 is a plurality of dewatering blades arranged on a certain curvature R with intervals between one another, and dewatering is by pressure generated by the dewatering blades, not the non-pulsating dewatering shoe claimed. In Kotitschke the shoe 6 is positioned after the beginning of the dewatering zone, and its dewatering effect is not described.

Claim 19 has been amended to particularly claim how the lip jet is applied only to the second wire and begins dewatering over the shoe only after the leading edge of the shoe, thus distinguishing over the art of record, as explained with reference to claim 25 above.

While the features set forth in claims 31–34 are perhaps suggested in Wildfong, applicant explains in paragraph [0042] that Wildfong does not suggest how to arrange the shoe of Wildfong followed by pulsating dewatering of sufficient strength so good formation of the paper is not lost. Thus Wildfong does not suggest pulsating dewatering shown in Buck, Iwata, and Kotitschke, which in turn do not suggest the importance of nonpulsating dewatering shown in Wildfong. The examiner argues the shoe of Wildfong is advantageous and therefore provides a motivation for substitution with known forming shoes, but as emphasized in the amended independent claim 25, applicant’s invention is not a mere substitution of the disclosure of Wildfong for the forming shoe of Buck, Iwata, or Kotitschke,

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rather the arrangement of the headbox and the breast rolls is also required.

New claim 37 has been added to further add structural limitations to the invention of claim 25.

Paragraph [0040] has been amended to correct a grammatical error, obvious in context.

Applicant believes that no new matter has been added by this amendment.

Applicant submits that the claims, as amended, are in condition for allowance.
Favorable action thereon is respectfully solicited.

Respectfully submitted,



Patrick J. G. Stiennon , Reg. No. 34934
Attorney for Applicant
Stiennon & Stiennon
P.O. Box 1667
Madison, Wisconsin 53701-1667
(608) 250-4870
Amdt2.res

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